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Title: Can Interpretations Ever Be Acceptable Basic Premises?

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ABSTRACT. Interpretations involve relating facts nomically. "Candidate B's receiving the majority of votes tabulated was an act of theft" is a paradigm, since it presupposes an explanation in terms of personal agency and intention. At the core of explanations are subjunctive conditionals or universal generalizations supporting such conditionals, and we may explicate the notion of an interpretation in such terms. Can subjunctive conditionals then ever be acceptable basic premises? As we may distinguish causal, personal, legal explanations, so we may distinguish causal, personal, i.e. empirical subjunctives from legal and perhaps other subjunctives. In each case, we may identify a belief-generating mechanism—empirical intuition versus pragmatic intuition—that generates basic beliefs. We may argue that a subjunctive belief is acceptable if the mechanism is presumptively reliable. In this paper, we carry this out for causal subjunctives and causal intuition—empirical intuition in its causal employment. We believe this issue is advanced by recent work in naturalistic epistemology, namely Hilary Kornblith's *Inductive Inference and Its Natural Ground*. We develop the implications of this approach for the acceptability of causal subjunctives as basic premises.

1. Introduction.

A classic distinction in rhetoric identifies three types of questions that may be raised over some disputed issue:

An sit — *Did something happen?* — Did candidate B receive a majority of the votes as tabulated?

Quid sit — *What sort of thing happened?* — Was candidate B's receiving a majority of the tabulated votes an honest result or election fraud?

Quale sit — *What is the value of what happened?* — If the election was fraudulent, were those responsible justified in stealing the election? (Compare Kruger 1975: 137.)

Answers to these questions constitute three distinct types of statements—descriptions, interpretations, and evaluations. We believe that determining whether a statement may be taken as an acceptable basic premise in an argument—a premise that is not argued for on the basis of other premises, at least in the course of that argument—involves centrally determining the type of statement involved.¹ Indeed, we propose three questions for determining premise acceptability:

What type of state is it?

What source vouches for it?

Does this voucher create a presumption for the statement?

That is, in light of the answers to the first two questions, would the burden of proof be shifted to a challenger to show why the statement should *not* be taken as a premise? In (2000), we argued that the description/interpretation/evaluation distinction is appropriate for classifying contingent or logically non-determinate statements.

¹. We have discussed these issues in (1991: 344-47).

Rhetoricians have characterized interpretations as raising issues of definition. This strikes us as misleading on two grounds. First, it is a commonplace that some analytic statements are true by definition. But intuitively, they are not interpretations. Secondly, some statements contain technical terms, e.g.,

That berm is less than 5' wide.

Unless we understand the definition of 'berm,' we shall not understand the statement. But given the definition,

'Berm' means 'the shoulder of a road'

the sentence,

That shoulder of the road is less than 5' wide

makes the same statement, which thus states straightforwardly whether something is the case. It is a description, not an interpretation. However, the rhetorical characterization contains a crucial insight, if we think not of linguistic meaning—what might be given through a definition of a word—but meaning in the sense of putting in perspective. This accords with Sproule's characterization of interpretations as placing facts into categories, relating them, placing them in perspective. (Sproule 1980: 142, 144.) More specifically, meaning in this sense involves relating facts nomically, in particular giving explanations. Taking

Candidate B's receiving the majority of votes tabulated was an act of theft.

as a paradigm of an interpretation, we see that this statement presupposes an explanation of the fact of candidate B's receiving a majority of the votes. It explains the fact in terms of personal agency and intention, with an imputation of personal responsibility.

But this explanation itself involves an interpretation. It relates certain actions either on the part of candidate B or his partisans to a system of intention involving goals of some sort. The actions become intelligible to us in light of these intentions. The explanation thus asserts both that certain actions happened and that one or more individuals had certain intentions—matters of description—and that the intentions and actions were nomically related, the interpretation proper. But what of the statement claiming or asserting this nomic relation? We believe that the statement could be cast into the following form or at least would support such a statement:

If agent *A* were to have a conscious purpose to bring about goal *G* and were to believe that doing *M* were (part of) the (optimal) means to bring about *G*, then *A* would do *M*. (Compare Freeman 2000: 153.)

Thus the core explanatory statement either is or supports a subjunctive conditional. We regard this as highly significant. Explanations involve nomic or lawlike generalizations of a universal or statistical sort. But it is the hallmark of such generalizations to support subjunctive conditionals. At the core then of explanations in general are subjunctive conditionals or universal generalizations supporting such conditionals. Rhetoricians, Sproule in particular, have identified a number of types of interpretations. We may ask then whether these various types may be seen as expressing subjunctives. May some types of interpretations, even though they do not express such subjunctives, be nonetheless defined in terms of those subjunctives? Can the classification of interpretations overall be systematized in light of the subjunctive? Looking at certain other

paradigms of interpretations, causal and dispositional statements, suggests a positive answer to this question.

Heating pure water to 100°C at air pressure of sea level causes it to boil.

Clearly this can be paraphrased as

If pure water were to be heated to 100°C at air pressure of sea level, it would boil.

Sugar is soluble in water.

Likewise this statement may be straightforwardly paraphrased to make the implicit subjunctive explicit:

If sugar were placed in water, it would dissolve.

In (200x) we develop a positive answer to this question. Reviewing that answer is beyond the scope of this paper. But in light of that answer, the issue of whether interpretations may ever be acceptable basic premises involves at core the issue of whether subjunctive conditionals can ever serve as basic premises. How may we then advance that issue?

2. Types of Explanations, Types of Subjunctives, and Intuition

The key to approaching acceptability for interpretations as basic premises is determining whether subjunctives may under certain circumstances be properly basic beliefs. Having connected subjunctives with explanations, the next step is to distinguish types of explanations on the basis of how their covering law generalizations come to be discovered and thus on the basis ultimately of the belief-generating mechanisms involved. We may identify two major types of explanation as *causal* and *personal*. In a causal explanation of some event or phenomenon, the occurrence is explained in terms of some antecedent event or phenomenon and a certain dispositional property or properties of the substances involved in that event.

1. The match lit because it was struck.

This explanation appeals to a certain dispositional property of the match which spells out certain conditions, individually necessary and jointly sufficient, for the match to light.

2. If the match were struck with a force of a certain magnitude (or greater), in the presence of oxygen, the match being dry, then it would light.

This explanation thus appeals to a nomic connection between striking a match and its lighting, expressible through a subjunctive conditional, together with the fact that the match was struck. Since this explanation seeks to explain an event in the material world through some antecedent event and some physical regularity, it is also a physical explanation. Physical explanations clearly are a subclass of causal explanations.

By contrast, personal explanations appeal to the powers, beliefs, purposes, or intentions of conscious, personal agents. (Swinburne 1996: 21-22.)

3. King Henry VIII sought to annul his marriage to Catherine of Aragon in order to remarry and father a male heir. (Compare Nagel 1961: 19.)

This explanation is personal, attempting to render King Henry VIII's action understandable in light of his reasons for it, which involve goals he has consciously intended and chosen. Not all

explanations appealing to the psychological states of an agent need appeal to that agent's conscious intentions, however. If one said that

4. The accused murdered the victim out of a consuming anger brought about by years of taunting.

we are not explaining an action as intentionally chosen to accomplish some goal, but rather as resulting from certain psychological "springs of action." (Compare Nagel 1961: 19.)

We are dealing with the motives rather than the reasons for action. This is a causal explanation, albeit one appealing to a psychological rather than a physical cause. Explanations dealing just with motives or other psychological sources of action are causal explanations. Personal explanations appeal to reasons and not just to motives.

We can identify another type of explanation. Consider:

5. Jones received \$10,000 because his late grandmother bequeathed him that amount of money in her will.

Here we certainly have an explanation of why Jones received \$10,000. We could make this explanation explicit in the classic deductive nomological pattern of many physical explanations—or at least in a syllogistic nomological pattern, since the law here

6. If one has been bequeathed a certain amount of money, one receives that money upon the demise of the person making the bequest.

is defeasible. But unlike physical explanations, the law here is not a law of nature but a matter of statute law. We have then a legal explanation in this case rather than a physical causal explanation.

Legal explanations differ in one central respect from the causal and personal explanations we have already distinguished. The covering generalization appealed to is not a matter ultimately of empirical discovery but is rather given in or derivable from some body of statute law. One does not discover that signing a contract creates legal rights and obligations the way one discovers that signing the contract lowers the amount of ink left in the pen. Legal explanations are a paradigm of types of explanation appealing to given as opposed to empirically discovered covering generalizations. Consider some classification scheme, for example a scheme for some branch of taxonomy. One could explain why an individual is of some genus by pointing out that the individual is a member of a species that the taxonomic scheme subsumes under the genus. Prescinding from any justification of the classification system and appealing to that system as given, we have here what we might call an explanation via classification. Such explanations, like legal explanations, thus appeal to some given generalization.

This survey reveals that for epistemological purposes we may distinguish two fundamental types of explanations depending on whether their covering generalizations come to be known or are ultimately supported "from below" through experience of the events and persons in the world around us, or "from above" through understanding some nomic system. Causal and personal explanations involve some apprehension of general connections in the world around us resulting in an empirical albeit nomic belief or accepting an empirical nomic statement. Legal explanations, by contrast, are based on our apprehension of general connections given in some system of statute law.

This leads us to an epistemological classification of subjunctives. As we have distinguished causal, personal, legal, and perhaps other types of explanations, so we may speak of causal subjunctives, personal subjunctives or subjunctives of freedom, legal subjunctives. More broadly, we may distinguish empirical subjunctives, including causal and personal subjunctives, from what we might call pragmatic subjunctives of which legal subjunctives are a paradigm case. In approaching the question then of whether subjunctives are ever properly basic beliefs, we should separate empirical subjunctives from pragmatic subjunctives. In each case, we believe we may identify a belief-generating mechanism that generates properly basic beliefs. We believe we should call these mechanisms empirical intuition and pragmatic intuition.

That we denominate both of these mechanisms as forms of intuition gives us a key to understanding how they operate and how we may assess the reliability of their operation. As Cohen points out, in the way certain analytic philosophers use the term, intuition concerns "what counts as a reason for what." (Cohen 1986: 73) To use Toulmin's terminology for the layout of arguments, intuitions concern warrants, the principles by virtue of which we get from data to claim. Intuition is one way in which warrants are grasped, and since warrants, properly understood as inference rules, are implicit in an argument rather than stated explicitly, (Compare Toulmin 1958: 100), intuition may be the principal way of grasping warrants. What does this have to do with subjunctive conditionals? Corresponding to the inference rule

From	Fx
We may take it that	Gx
is the generalization	
	$(\forall x)(Fx \supset Gx)$

But this clearly is not an accidental generalization. It supports a subjunctive conditional, namely

$$(\forall x)(Fx \Box \rightarrow Gx)$$

So corresponding to the warrants of inferences are generalized subjunctive conditionals. To grasp the warrant is to come to believe at least implicitly the corresponding subjunctive conditional. Thus if a type of intuition is a mechanism for grasping the warrants of arguments of a certain type, it is also the mechanism for generating beliefs that the corresponding subjunctive conditionals or universal generalizations of subjunctive conditionals hold. Furthermore, what bears upon the reliability of the inference warrant bears upon the acceptability of the subjunctive conditional. If one can reliably infer a conclusion from certain premises according to a given inference pattern, then one can take the corresponding subjunctive as a premise in some further argument. The reliability of intuition to grasp reliable warrants and the reliability of intuition as a mechanism generating beliefs expressed in subjunctive conditionals amounts to the same thing. Hence we may investigate the presumptive reliability of intuition as a belief-generating mechanism by investigating its presumptive reliability in grasping warrants.

Making contact with one further structural distinction in Toulmin's layout of arguments indicates the fruitfulness of this approach. Toulmin distinguishes between warrants, which explain why data are relevant to claim, and backing for those warrants, which may be brought forward to establish why a warrant is acceptable, why in Toulmin's words the warrant has authority or currency (Toulmin 1958: 103.), why we *are* in fact licensed to move from those data

to that claim. We may think of the backing as the input on which some form of intuition intuits that something is a reason for something else, that from certain premises we may infer some conclusion. Thus the backing is the input for the mechanism generating subjunctive beliefs. So we may expect to get insight into the reliability of these belief-generating mechanisms as we get insight into the reliability of the corresponding inferences given how they are backed. Furthermore, as Toulmin points out, how warrants are backed differs widely from field to field. Above we distinguished different types of subjunctives corresponding to different types of explanations. Various types of explanation correspond to various fields of argument. We should expect the inferences and their warrants to be backed in different ways and thus modes of intuition as subjunctive belief-generating mechanisms to operate differently in different fields. Thus we should expect our task of assessing whether these modes of intuition are presumptively reliable to be much more straightforward if we can concentrate on just one field at a time and on how inferences in those fields are backed. Due to reasons of space, in the remainder of this paper we shall discuss just the field of causal arguments.

3. Causal Intuition as a Belief-Generating Mechanism

By means of causal intuition as a belief-generating mechanism, we come to believe certain subjunctive conditionals or their universal generalizations that express or indicate causal relations. I propose that the operation of causal intuition can be resolved into two factors: detection of covariation and imposition of an interpretive category. In the general instance, that category will be causal dependency. What do each of these factors involve? In nature, some features regularly occur together, F is generally accompanied by G , if not universally, then with some statistical uniformity (although not necessarily *vice versa*). Such occurring together is covariation and the ability to recognize this is covariation detection.

We may not only come to believe that there is a constant conjunction here, we may come to apprehend F as an independent variable and G as the dependent variable. In other words, we may come to perceive F as a relevant variable with respect to G . This will involve an intuition of agency involved with F . For example, one may notice that dropping a stick is always accompanied by a noise. But one may further apprehend dropping the stick as the independent variable and making a noise as the dependent variable. In apprehending this, one is apprehending dropping the stick as the causal agent in this case. But this means that we have brought a certain interpretive category to our experience, namely that nature has relevant variables. Nature's having relevant variables means that there are independent and dependent variables objectively in nature, i.e. that there are objective causal dependencies between agent and that acted upon, between cause and effect.

I believe that we can understand the operation of causal intuition in the general case, where the category imposed is that of causal dependency, on analogy with the determinable/determinate distinction or as in a sense moving from the determinable to the determinate. To say that in nature there are <independent variable, dependent variable> ordered pairs is in effect to predicate a determinable of nature. But on the basis of observing a particular covariation pattern, F with G , I may come to perceive < G , F > as a particular instance of co-variation, that < G , F > is a determinate falling under this determinable. By experience, I move from the determinable pattern to the determinate instance.

We have said that in the general instance with causal intuition, the category imposed is causal dependency. But there is a special case that is very relevant to the issue of assessing the reliability of causal intuition. We have spoken of covariation as if it were detected in individual independent-dependent variable pairs. But in nature, there occur clusters of covariant properties, sets of properties that tend to occur together, what Kornblith following Boyd calls homeostatic property clusters. This notion is straightforwardly illustrated. At the level of observable properties, we may easily recognize that some tend almost invariably, even uniformly, to go together. For example, if something is an apple, it will have skin and flesh, each of a certain texture, small brown seeds, a shape within certain roughly anticipated parameters. Furthermore, as Kornblith points out in (1993), empirical evidence “suggests that we are, indeed, quite good detectors of multiple, clustered covariation.” (Kornblith 1993: 101.) In such cases, one can impose the category not of simple dependency but of natural kind. Instances of these clusters of covariation will be seen as instances of some natural kind.

This has very specific implications for the operation of causal intuition. As the psychologists Medin and Ortony point out, “People act as if their concepts contain essence placeholders that are filled with ‘theories’ about what the corresponding entities are.” (Medin and Ortony 1989: 186; quoted in Kornblith 1993: 71.) For our purposes, let us say that natural kind concepts do contain essence placeholders filled with theories about what is essential—causally essential—to the natural kind. These theories may be very preliminary. But what they do at the least is to allow us to divide the observable covariant properties into those seen to flow causally from the essence and those that may be accidental. That is, the theory allows us to identify among the properties in the covariant cluster those that are dependent variables, the effects of independent variables which constitute the essence of this natural kind. The theory may, but need not, characterize what those independent variables are. In general, they will involve nonobservable properties dealing with the internal structure of instances of the natural kind. The more developed the characterization, the less preliminary the theory.

As Kornblith develops in (1993), by means of our experience and these natural kind concepts, we may come to make projections. For example, suppose I observe in a zoo that a female platypus lays eggs. From this I project from something's being a female platypus to her being an egg-layer. I thus acquire the corresponding subjunctive belief that if something were to be a female platypus, she would be an egg-layer. In generating this subjunctive belief by intuiting according to natural kinds, we may again see a move from determinable to determinate analogous to the move with intuitions of causal dependency. Part of or closely bound up with the essence of a species of living thing is having a mode of reproduction—reproducing in some way or other. My experience indicates that for the platypus, this mode is egg-laying. Thus the observable property of egg-laying is the determinate for platypuses of this determinable. What is also significant here is that part of the essence of a natural kind is that the determinate of this determinable is unique to the kind. It is not the case that some members of the species reproduce in one way, others in another way. Hence once my experience discloses the specific mode of reproduction of the species, I may project that mode to the entire natural kind. This is significant for determining the presumptive reliability of causal intuition, to which we now turn.

4. Presumptive Reliability of Causal Intuition

Let us begin by investigating whether causal intuition is presumptively reliable in its operation with natural kinds. The issue of its reliability when intuiting causal dependency in simple covariation can be straightforwardly assessed by contrast. Kornblith (1993) gives us an argument for the overall reliability of causal intuition when making projections according to natural kinds. Recall our illustration of a homeostatic property cluster through certain observable properties of an apple that stably go together. Examples of stable collections of properties can be easily multiplied. Such collections are subsets of wider stable collections that include unobservable properties also. Furthermore, having these unobservable properties will explain why objects have the observable properties they do and why these properties standardly occur together in an object. Further yet, these unobservable properties may explain why certain configurations of properties can hold together and others are not possible (causally possible). Given this understanding of a homeostatic property cluster, we may lay out Kornblith's argument quite straightforwardly:

1. Certain features of objects reside in homeostatic clusters. Therefore
2. There are real natural kinds in the world—the world is objectively divided into natural kinds.
3. Human beings apprehend the world as divided into natural kinds.
4. Human beings are sensitive to those features of objects tending to reside in homeostatic clusters, i.e. human beings are sensitive to the indicators of objective natural kinds. Therefore
5. Natural kinds as apprehended by humans match up with real kinds in nature.
6. What is apprehended as essential to a real kind *is* causally essential to that kind.
7. Humans project, i.e. make inferences, on the basis of what is essential to natural kinds. Therefore
8. These projections, inferences are reliable at least to a significant degree.

Evaluating this argument is beyond the scope of this paper.² Suffice it to say here that the basic premises can all be defended and the inferential steps shown sound. The issue concerns what this argument shows. Does (8) justify the claim that we may presume causal intuition to be reliable when making projections according to natural kinds and thus to be reliable in generating the subjunctive beliefs corresponding to the warrants of these projections?³ Has Kornblith shown that the reliability of causal intuition is high enough to justify our accepting a particular causal subjunctive which is the product of causal intuition—taking it as a basic premise in an argument on the basis of its being vouched for by causal intuition? Three problems must be dealt with in this connection. The first two arise from Kornblith's own discussion. Indeed the second involves problems in covariation detection he himself considers. The third raises a deeper issue for causal intuition in general, but paradoxically points the way to a resolution of these three problems. We

². We present our evaluation in full in (200x), Chapter 8.5.

³. Besides presumptive reliability, we may also ask whether causal intuition in this employment generates basic beliefs. We present our argument for that point in (200x), Chapter 8.5.

shall also be able to discuss the reliability of intuiting causal dependencies in simple covariations in connection with the second and third questions.

First, as Kornblith admits, reliability of empirical intuition is a function of what fills the essence placeholder. "In having our inferences driven by a sensitivity to the deeper properties which unite a kind, we are thereby drawing on what we know about the kind's essence. *Insofar as that knowledge is accurate*, our inductive inferences will be reliable." (Kornblith 1993: 106, italics added.) But in a given case of causal intuition, what guarantee is there that this knowledge will be accurate? May we presume this in general? May we presume it when certain conditions are satisfied? What are those conditions?

Secondly, certain examples that Kornblith discusses suggest that humans may be overzealous in detecting covariation. This arises both in examples where covariation detection is data-driven and where it is theory-driven. Data may suggest covariations which are not there and these suggestions erroneously accepted. Theories may suggest that having certain properties causally follows from the essence of some natural kind where this is false, yet projections are erroneously made according to these suggestions. But surely incorporating these mistaken suggestions affects the reliability of causal intuition both in intuiting according to natural kinds and in intuiting causal dependencies.

Before considering the third problem, let us consider this second. The answer to the first will emerge from this discussion. We can best deal with this problem by looking at the problematic examples Kornblith considers. For the data-driven case, he presents the example of a population of 150 people where two-thirds have a certain disease, one-third do not. There is also a certain symptom. Two-thirds of the people who have this symptom also have the disease, while two-thirds of the people without the symptom also have the disease. Hence, at least in this population, the symptom is no sign of the disease. The statistics about this population are presented in the following table:

		DISEASE A	
		Present	Absent
SYMPTOM X	Present	20	10
	Absent	80	40

(see Kornblith 1993: 97). Concentrating just on the X/A or X/\bar{A} and \bar{X}/A cells, many persons claim that the symptom is a sign of the disease, while others, concentrating just on the \bar{X}/\bar{A} and \bar{X}/A cells, claim that lack of the symptom is a sign of the disease.

For the "theory" driven case, undergraduates were shown a series of forty-five drawings representing persons. Clinicians have asked patients to make such drawings in diagnosing psychological disorders, believing that drawings that manifest certain features indicate certain psychological problems. "For example, paranoid individuals are said to give emphasis to the

eyes; those worried about intelligence are said to draw larger heads; those concerned about their sexual identity give prominence to genital areas." (Kornblith 1993: 99.) Experimental work has disconfirmed these associations. With the undergraduates, each drawing was presented accompanied by a diagnostic label. Yet the drawings were carefully done so that those labelled paranoid did not give any more prominence to the eyes than drawings bearing other labels, and similarly for the other labels. There were no correlations to see, but the students claimed to see them nonetheless, exactly those correlations the clinicians would expect.

This wholly useless diagnostic instrument is thus a product of common association, and the fact that we tend to associate certain clinical problems with features of the body gives rise to the illusory correlation. (Kornblith 1993: 100.)

Notice what the undergraduates are doing in this case. A clinical diagnostic category is in effect a natural kind term. The common association of a category with a type of drawing as symptom is (part of) a theory filling the essence placeholder. The undergraduates make their erroneous projections that the drawings do in fact display these symptoms given these diagnostic labels driven by these erroneous theories. So the problem of theory-driven erroneous covariation detection is included in the first problem for causal intuition, that of unreliable theories filling the essence placeholders. Can we say that causal intuition is presumptively reliable if mistaken theories can fill the essence placeholders in natural kind concepts and thus drive causal intuition?

We must note one further fact about the theory-driven example whose salience will appear in due course. The undergraduates did not know that the drawings were used by clinicians as diagnostic tools. Thus they did not know of the evidence showing these tools unreliable and disconfirming their commonly accepted associations. On the other hand, clinicians did know of the disconfirming evidence, yet they continued to use the drawings in making diagnoses. Thus in continuing to accept these associations, the clinicians were disregarding evidence already in their purview. They were accepting diagnoses grounded on less than all the evidence available to them.

This is true also of the data-driven case. Consider the symptom-disease chart above. To see that there is no covariation, positive or negative, between the symptom and the disease, one needs to look at the chart as a whole. Attention just to those cells where the symptom is present or just to those cells where the symptom is absent results in a mistaken judgment of covariation. But the point is that those presented with the chart have all the evidence in front of them and are making their mistaken judgment of covariance on the basis of less than all the information before them.

This leads directly to the third problem for the presumptive reliability of causal intuition. Whether or not one takes account of evidence before oneself is a matter of will. Thus, as Cohen points out, there is a significant difference between the mechanism (or mechanisms) generating causal beliefs and the mechanisms of perception or memory. The will can influence the operations of the causal mechanism whereas it cannot so influence the descriptive mechanisms. I am appeared to in a certain way and straight off form a perceptual belief. Unless I also have evidence that my visual mechanism is not functioning properly or that I am in some peculiar environment for which my visual apparatus was not designed, my belief is also acceptable. My having the belief is a presumptive reason for my taking it as a premise. (Compare Cohen 1992: 130.) But, as Cohen points out, mistaken causal beliefs—at least about how Nature works—are

quite common and therefore causal beliefs about nature's operations are not by themselves presumptively acceptable. (Cohen 1992: 130) He diagnoses the problem this way:

What is the crucial difference between the kind of mechanism that generates presumptively acceptable beliefs and the kind that generates beliefs which are not presumptively acceptable?... Wherever there is standardly some opportunity for the intrusion of a voluntary element into the mechanism, the kind of belief generated is not presumptively acceptable, because a mistake may be made in the discharge of this voluntary element. (Cohen 1992: 130-31)

Does this show that causal intuition is never presumptively reliable, that there is never a presumption for the beliefs generated by causal intuition? We believe that Cohen's negative diagnosis may be too hasty. Suppose there was a presumption that no mistake was made in the discharge of the voluntary element. Then why should there not be a presumption in favor of the resultant belief? But what would it mean for there to be a mistake? For Cohen, the mistake is in not subjecting the intuited causal law or causal dependency to test, in not acquiring further information. The question concerning the reliability of causal intuition becomes whether there *always*, in every context, is this obligation to seek this further information. This is a question in the ethics of belief. Do the examples in W.K. Clifford's classic paper indicate how we might answer this question?

Consider the ship owner. Practically the first thing Clifford tells us is that of his ship,

"He knew that she was old, and not over-well built at the first; that she had seen many seas and climes, and often had needed repairs. Doubts had been suggested to him that possibly she was not seaworthy." (Clifford 1886: 339)

Clifford is not faulting the ship owner for not gathering further evidence, but for flagrantly disregarding the evidence before him. This contrasts with his second example, where agitators are at fault simply for responding to rumors about certain individuals and for having done no investigation to ascertain the truth of those rumors. Here the fault seems clearly to be not gathering proper evidence.

We may argue, however, that the agitators also were wilfully disregarding information in their evidential situation. They believed that certain individuals had manipulated "the laws of their country in such a way as to remove children from the care of their natural and legal guardians; and even of stealing them away and keeping them concealed from their friends and relations." (Clifford 1886: 340) This is an ascription of personal responsibility. Since the agitators accepted this interpretation on the basis of rumor and thus the word of others, the belief is not an instance of personal (as opposed to causal) empirical intuition on their part. But surely this mechanism of taking one's word is not reliable in general. Reliability requires the context in which testimony is received to include certain evidential features. The absence of those features raises the question of whether there is any presumption for a person's word. But surely if a word is just rumor, those features are absent, and their absence is part of the evidential situation. So like the ship owner, the agitators were wilfully disregarding evidence that undercut the presumption for their ascription of responsibility.

This leads to the following question for causal intuition. Are the situations in which causal intuition may be employed *always* such as to call the presumptive reliability of causal intuition into question? Do such situations always contain evidence or raise questions whose wilful

disregard would undercut any presumption for causal intuition? The question needs clarification. Consider the ship owner again. That his judgment of the ship's seaworthiness is false is not merely a logical possibility. It is not just that there is some possible world in which the ship goes down. Given the owner's evidence, the ship's not being seaworthy is a causally *nomic* possibility. The mere fact that one can conceive of an interpretive belief arrived at through causal intuition to be false is not sufficient to call the presumptive reliability of causal intuition into question. There must be a real possibility of its falsehood. To substitute logical for real possibility here would be to engage in epistemic scrupulosity.

Contrast the ship owner with the undergraduates. On the basis of commonly accepted associations, the students "recognized" features in the drawings, exaggerations of certain parts of the body, which were not there in actuality. They were projecting on the basis of these associations. Recall that the students did not know of the evidence discrediting the common associations on which they were basing their projections. The evidentiary situation for these students then is different from the situation in both of Clifford's examples. The ship owner knew of evidence that the ship was not seaworthy. The agitators knew that the source of the allegations was rumor and not trustworthy testimony. Clearly the ship owner had an epistemic duty to secure sufficient counterevidence—if such could be found—that the ship was sound; the agitators had an epistemic duty to gather reliable evidence—if any existed—for the allegations before they would be within their epistemic rights to accept these judgments. But did the undergraduates have an epistemic duty to gather evidence for the associations underlying their projections, which were apparently vouched for by common sense? Unlike the undergraduates, the clinicians *were* aware of disconfirming evidence and thus had an epistemic duty to gather counterevidence to justify the association before projecting according to it. But did the undergraduates have a similar duty? Why, in the absence of evidence, should they question the association? Would it not be an epistemic counsel of perfection, enjoining scrupulosity, to say that they did? So it seems that the undergraduates' evidentiary situation did not call into question the presumptive reliability of their belief-generating mechanism whereby they projected from the diagnosis to the symptom. To be sure, there was some evidence before these students that their projections were faulty. Careful inspection, possibly with the aid of rulers, could show that the drawings did not manifest the features the students "saw" in them. But where was there evidence in the situation that this amount of care in perceptually observing the drawing was called for?

Notice that there are two places where the will can enter into the operation of causal intuition proceeding according to natural kinds. On the basis of observations made, one sees certain objects as being of a natural kind and on the basis of the theory occupying the essence placeholder one projects from certain observed features of the observed instances of the natural kind to members of the kind in general. Hence the will can affect the amount of perceptual information taken into account and it can affect whether or not to accept the nomic principles making up the theory substituted for the essence placeholder. Evidence that in perceiving the situation further relevant information was overlooked or that evidence counting against the nomic principles incorporated into the theory constituting the essence of the natural kind was disregarded undercuts the presumption of reliability of causal intuition in those cases. But where there is no such evidence, why should we say that causal intuition is not presumptively reliable?

By contrast, let us consider an example of the intuition of a causal dependency on the basis of observed covariation.⁴ Suppose one observed bees returning on a number of occasions to a container of sugar water placed on a blue card and formed the belief on the basis of this experience that bees were sensitive to the color blue, i.e., if something were a bee, it would be able to discriminate the color blue. Is this belief formed reliably and if not, are there evidential factors in the situation that undercut the presumptive reliability of the belief? The answer to the first question is negative and its explanation gives a positive answer to the second. Being able to discriminate color—blue at least—is just one of a number of possible relevant variables which could explain the observed bee behavior. Bees might be returning to the card because they recognized its shape or relative location, or because they are responding to the smell of the sugar-water in the container. The alleged nomic connection is questionable precisely because of this multiplicity of nomically possible relevant variables. To be justified that color discrimination explains the bees' behavior one would need to rule out the other variables. The problem here is failure to discharge the burden of proof raised by these other variables.

Contrasting the platypus example considered earlier and the bee example is instructive in showing why there is a presumption of reliability in the first case but not in the second. In the platypus case, part of the theory filling the essence placeholder of the natural kind term "platypus" is the causal regularity that given the internal physiological structure of platypuses—whatever that might be, members of the species reproduce in a certain particular way—whatever that is. This regularity is quite preliminary. It does not tell us the specific way in which platypuses reproduce or how that is tied to certain physiological features. But it does assert that this mode of reproduction will be uniform and not variable across the species. Hence, when we perceive a platypus reproducing by laying eggs, we are justified in projecting this feature to platypuses in general.

Contrast this with the bee case. Here certain regular bee behavior is observed. But here we do not have as part of our theory of the essence of this natural kind that bees are so constituted physiologically that returning behavior is determined by one and only one variable. Such a claim of regularity would incur a significant burden of proof. Our theory of the essence does not propose some determinable of which "responding to blue" is the determinate. Rather than projecting according to a theory of determinable/determinate uniformity incorporated into the essence theory, the object of the inquiry here is to determine what causal regularity concerning color discrimination should be incorporated into the theory of the essence of this natural kind. Since many relevant variables may affect color discrimination, this question cannot be settled through empirical intuition alone. Testing the relevant variables is required and the resultant belief justified by the evidence these tests generate is an inferred, not a basic belief. That other relevant variables are causally possible is part of the evidential situation. Thus to accept a judgment before these tests have been completed is to disregard part of the evidence in the situation.

That the internal physiological structure of members of a species determines some uniform mode of reproduction for that species seems to follow from the very notion of a species. Given this understanding of species, there should be a presumption for this causal claim. Other non-basic causal claims may enter into the theory filling the essence placeholder in some natural kind

⁴. This example is based on Cohen's discussion of von Frisch's experimental work on bees in (1977: 129-33).

term. For example, our theory might contain a causal law received on testimony from a trusted authority as apparently was the association accepted by the undergraduates. The point is that as long as there is a presumption for this causal law, the presumption of reliability for causal intuition proceeding according to this law is not compromised.

Given these considerations, we may argue for the conditional reliability of causal intuition proceeding according to natural kinds. We should like to call this a Reidian argument, since it parallels how we can argue for the presumptive reliability of sense perception on Reidian grounds. For Reid, it is by virtue of certain principles of our constitution that certain sensations or features of our sensations become signs of external qualities. We should be acting against our nature to reject these natural signs or to regard them as unreliable. Indeed, not only would we be going against our nature, Reid feels it would be impossible to carry out this rebellion. Reason cannot certify this reliability. But to appeal to reason for such certification is wrongheaded. The presumption of reliability for sense perception is not a matter of reason but of common sense. Hence, unless we are confronted with evidence to the contrary, we may concede the genuineness or reliability of the signs manifested in perception. Indeed, these natural signs, the fact that features of our sensations or how we are appeared to suggest or are signs of qualities in external objects, are first principles of our nature.

All reasoning must be from first principles; and for first principles no other reason can be given but this, that, by the constitution of our nature, we are under a necessity of assenting to them. Such principles are parts of our constitution, no less than the power of thinking. (Reid 1983: 57-58.)

As long as in taking account of the information which will back, in Toulmin's sense, the projection made on the basis of a natural kind, one has not wilfully suppressed information, and as long as one has not admitted unjustified causal laws or nomic principles into one's understanding of the essence of the natural kind, then to project according to that kind and to form the corresponding subjunctive conditional beliefs is part of our constitution. That causal intuition in this employment is reliable is thus a first principle as are the particular beliefs generated in this way. They form part of the basic premises *from* which we reason. Propositional justification appeals ultimately to such premises, which do not themselves need propositional justification or to be justified by reason.

The condition then for the presumptive reliability of causal intuition proceeding according to natural kinds is the right operation of the will in both places where it can enter into the operation of this mechanism. Notice that in some instances the condition is simpler, since the will is not operating to admit principles into the essence. We may speak of the developmental nature of essence concepts. Initially an essence just indicates that a natural kind has an "outside" and an "inside," letting us identify some of the observable properties of the instances of that kind as following from the internal structure and thus being essential. We do not come to accept that the essence has this structure on the basis of evidence. Our recognizing this structure is immediate, like coming to form a perceptual belief on the basis of being appeared to in a certain way. The will does not enter here. As our understanding of the internal structure increases, so does the richness and precision of the essence concept. But surely there is a presumption for the initial minimal filler for the essence placeholder. If our argument has shown anything, it is that discriminating an inside from an outside, regarding natural kinds, is part of our constitution. So long as there is a presumption for any additional nomic principles admitted into the essence, a

presumption which could be ensured by accepting these principles on the basis of presumptively reliable testimony or proper evidence generated through tests, so long as the will operates according to these principles—and backing information has not been wilfully disregarded—the presumption for causal intuition's reliability is maintained.

Notice how the situation is different with respect to intuiting nomic connections simply on the basis of detecting covariation. One observes that one property occurs conjointly with another. Is this simply an accident of what has been observed or does it indicate a nomic connection? Unlike the case with natural kind terms, letting us distinguish essence from accident, there is no theory to discriminate "essential covariation" from "accidental covariation." To be confident that this intuited connection were genuinely nomic, one would need to know that no other relevant variables needed to be taken into account in this situation. But then the belief in the nomic connection would be acceptable on the basis of this propositional evidence and not as a basic belief. Thus in this employment there is not a presumption for causal intuition as a mechanism generating basic beliefs as there is with causal intuition guided by natural kinds.

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